

Influence of Viscosity on Intradermal Injection Using Hollow Microneedle

Student: Zhongnan Wu

Project Sponsor: Dr. Boris Stoeber

Project Period: September 2018 – April 2019

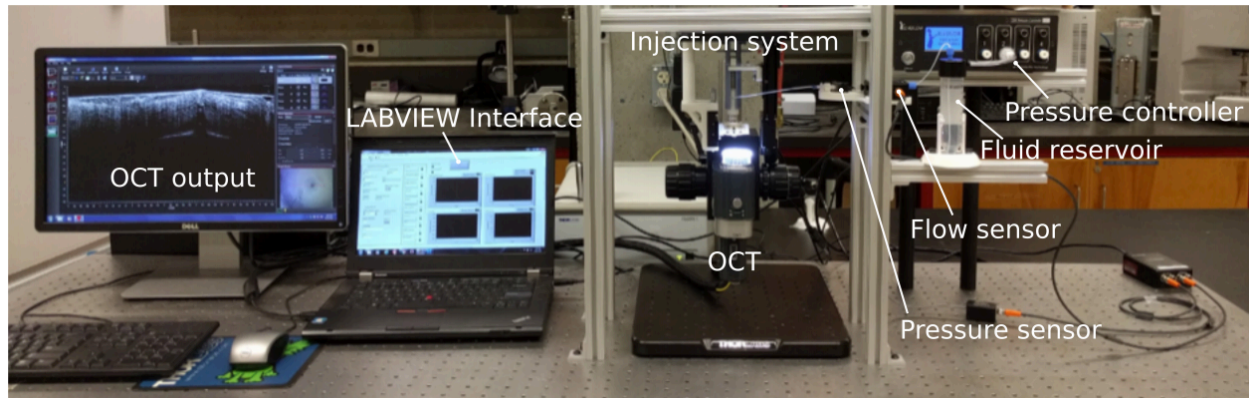


Figure 1: Experiment setup of conducting intradermal injection using hollow microneedle on porcine skin sample

Intradermal injection using hollow microneedle has been under development for the last several decades. It has advantages over traditional injection methods, such as bringing less pain to the patient, and less dose needed for vaccination. Several parameters during the injection procedure would influence the injection flowrate and injected volume, including viscosity of fluid, input pressure, and retraction distance. In this research, the effects of viscosity of the fluid on injection performance are investigated. By controlling fluid viscosity while keeping all other relevant factors the same, a specific relation is obtained through experiments. There are still further experiments that are needed to be done in order to optimize the injection. It has a broad biomedical application if all influencing factors are well-understood.

Copyright held by UBC. UBC Authors are:

OR

The copyright holders of this file grants permission for its use through a Creative Commons license, and the uploading and use of this file to the UBC Wiki is compliant with the license terms (select specific license):

- Creative Commons Attribution 2.5 Canada ([legal code](#))
- Creative Commons Attribution ShareAlike 3.0 ([legal code](#))
- Creative Commons Attribution ShareAlike 2.5 ([legal code](#))
- Creative Commons Attribution 3.0 ([legal code](#))
- Creative Commons Attribution 2.5 ([legal code](#))
- Creative Commons CC0 Waiver (release all rights, like public domain: [legal code](#))